THE DIPTEROUS GENUS CAMPSICNEMUS IN NORTH AMERICA.¹

By F. C. HARMSTON AND G. F. KNOWLTON.²

Flies of the genus *Campsicnemus* are small, rarely exceeding 2.5 mm. in length. They often are found running about on the surface of still water, much as do *Hydrophorus*. On several occasions the writers have collected specimens from the surface of snow banks. Males of many species possess distinctive secondary sexual modifications, especially prominent on the legs, making the genus of special interest to students of natural history.

The following report includes a key to males of species occurring in North America. In addition are descriptions of three apparently undescribed species, synonymy notes, and additional distribution records for several species.

KEY TO THE MALES OF NORTH AMERICAN CAMPSICNEMUS

Ι.	All femora black, though tips may be narrowly yellow 2	
	At least one pair of femora one-half yellow	
2.		
	tened lobe-like projection on outer anterior edge near	
	apex vanduzeei Curran	
	Middle tibiae of nearly equal thickness throughout, not greatly	
	"deformed" 3	
3.	Wings with a conspicuous brown spot on last section of fourth	
	vein nigripes Van Duzee	
	Wings without such spot 4	
4.	Halteres blackish; middle basitarsi curved somewhat in the	
	shape of a semicircle curvispina Van Duzee	
	Halteres yellow; middle basitarsi not or but slightly curved	
	melanus n. sp	
5.	Middle tibiae wholly black, greatly thickened near the middle	
	oedipus Wheeler	
	Middle tibiae yellow basally, at least	
6.	Middle tibiae greatly thickened and "deformed," at least near	
	middle 7	
	Middle tibiae not, or scarcely thickened	
1	Contribution from the Department of Entomology, Utah Agri-	
cultural Experiment Station.		

² Graduate assistant and research associate professor of entomology, respectively.

7.	Middle tibiae greatly thickened, deeply excavated near apex, bearing in hollow of the excavation a conspicuous per
8.	duncled process <i>philoctetes</i> Wheeler Middle tibiae without such a peduncled process near the apex 8 Middle basitarsi curved in the form of a semicircle; wing with- out a spot on last section of fourth vein
	thersites Wheeler Middle basitarsi not strikingly curved; wing with a con- spicuous brown spot on last section of fourth vein claudicans Loew
9.	Fore tarsi with second joint bearing a long laterally projecting filament, this being as long as remaining joints of tarsi 10
10.	Fore tarsi without a laterally projecting filament II Antennae, including arista, entirely black; fore tibiae wholly black bryanti Malloch
	First joint of antennae yellow; apical one-fifth of arista fringed with delicate white hairs, appearing silvery; fore tibiae yellowish
II.	Fore basitarsi bearing a row of long hairs on lower surface, these hairs as long as second joint of tarsi; third antennal joint sharply pointed
	Posterior basitarsi and second joints each with a row of deli- cate cilia on lower surface (fig. 5); these cilia pale, hooked at tip
	Neither the fore nor posterior basitarsi with prominent cilia on lower surface
12.	Middle tibiae with outer surface densely covered with long hairs, those on outer-posterior surface delicate, curled
	arcuatus Van Duzee Middle tibiae not densely covered with long curled hairs on outer surface
13.	Fore femora blackened on basal half; middle tibiae with a black, wart-like protuberance on outer-anterior surface (fig. 6), slightly beyond middle montanus n. sp.
14.	All femora wholly yellow
-4.	Fore coxae blackish; wings with a faint brown spot on last section of fourth vein

Campsicnemus melanus n. sp.

Male: Length, 2 mm.; of wing, 2.5 mm. Face yellowish

brown, narrow, especially near the middle where the eyes appear approximated. Front metallic black with purple reflections, especially prominent along the orbits. Antenae black; third joint nearly triangular, slightly longer than wide, pubescent; arista basal. Inferior orbital cilia white; the upper cilia are black and descend to about one-half the eye height.

Dorsum of the thorax black, dusted with brownish pollen, an indistinct bluish line shows through the pollen between the rows of minute acrostichal bristles; pleura black, densely grayish pollinose. Abdomen black with bronze reflections on dorsum, the lateral margins lightly dusted with grayish pollen. Hypopygium imbedded; only a brown, downwardly-directed filament projects.

Coxae and all of legs black, the tips of all femora narrowly yellowish; middle tibiae (fig. 8) when viewed from behind somewhat flattened, bearing a few conspicuous bristles near the middle on outer surface and a more prominent bristle slightly beyond the middle. Middle basitarsi scarcely curved, bearing a prominent black spur-like projection at tip on upper surface, fringed along entire upper surface with black hairs which are nearly as long as the width of basitarsi. Otherwise the legs are of plain structure. Joints of fore tarsi as 8–4–4– 2–3; of middle tarsi as 8–4–4–3–3; of hind tarsi as 7–7–5–3–3. Calypters and halteres yellow, the former with black cilia.

Wings grayish hyaline; third and fourth veins slightly diverging beyond the cross-vein; the length of cross vein compared to last section of fifth vein is as 6 to 10; last section of fourth vein without indication of a spot; anal angle evenly rounded, prominent.

Female: Slightly larger than the male; otherwise like it in general external appearance except that the middle tibiae are of plain structure.

Described from six males and two females all taken in Utah. Holotype male, allotype female and one female paratype taken at Torrey, August 20, 1939; three paratypes from Callao, September 18, 1938; two paratypes from Mt. Home, July 19, 1940, all collected by G. F. Knowlton and F. C. Harmston. Holotype and allotype deposited in the U. S. National Museum; paratypes in the insect collections of the Utah Agricultural Experiment Station, the California Academy of Sciences and the University of Kansas. Taxonomy: Campsicnemus melanus n. sp. resembles both C. nigripes V. D. and C. curvispina V. D., in general appearance. C. nigripes differs from curvispina and melanus n. sp. in having a conspicuous brownish spot on the last section of fourth wing vein (fig. 2), and in having the middle tibiae conspicuously flattened near the middle (fig. 1). The black halteres in curvispina will readily distinguish it from either nigripes or melanus n. sp.

Campsicnemus utahensis n. sp.

Male: Length, 2 mm.; of wing, 2.2 mm. Face brown, very narrow on central portion, where the eyes are approximated; immediately below the base of antennae the greenish ground color shows through the thick brown pollen. Front black, metallic, with purple reflections; narrowly greenish along the orbits. Antennae (fig. 9) black, third joint longer than wide, pubescent. Inferior orbital cilia white, the upper ones black.

Dorsum of thorax metallic, black, a central vitta and the dorsum of scutellum greenish; pleura greenish-black, dulled with gray pollen. Abdomen dull green, the dorsum with bronze reflections, lightly dusted with gray pollen. Hypopygium small, embedded.

Fore coxae yellow, the outer edge with a row of black hairs of increasing length which begin near the base and end in the apical bristles; inner portions with delicate pale hairs (easily overlooked). Middle and hind coxae black. Femora yellow, the middle pair slightly thickened and bearing a row of about five bristles on outer apical one-fourth, these ending in the preapical bristle; posterior femora with a single preapical bristle. Tibiae yellow, the extreme base and apex of fore and hind pairs blackened; middle tibiae (fig. 3) scarcely thickened, the extreme base and apical half blackened, bearing a single long bristle on outer surface slightly beyond the middle and a few scattered bristles nearer the base. Tarsi wholly black, fore and hind pairs simple: middle basitarsi with a row of rather prominent hairs on upper surface, the apex with a prominent sharp spur-like projection. Joints of fore and middle tarsi as 7-3-3-2-2; of posterior tarsi as 8-6-4-3-3. Calypters and halteres vellow, the former with black cilia.

Wings grayish hyaline, without spots or infuscations; length of cross vein as 4, the last section of fifth vein as 9; anal angle moderately prominent, evenly rounded.

Described from 7 males, all taken in Utah. Holotype and 4

paratypes taken at Heber, May 29, 1940; two paratypes taken at Torrey, August 20, 1940, all by G. F. Knowlton and F. C. Harmston. Holotype deposited in the United States National Museum; paratypes in the insect collections of the Utah Agriculture Experiment Station and the California Academy of Sciences.

Campsicnemus utahensis n. sp. is much like *C. arcuatus* V. D. in color of body and legs; it is distinguished from the latter, however, in the chaetotaxy of the middle tibiae which in *arcuatus* (fig. 7) are densely haired on the entire outer surface, these hairs being delicate and curled at the tips; in *utahensis* the outer surface of the middle tibiae (fig. 3) possesses but a few scattered hairs near the middle and a single prominent bristle.

Campsicnemus montanus n. sp.

Male: Length, 1.5 mm.; of wing, 1.9 mm. Face brownish pollinose, short, leaving the lower portion of eyes sharply exposed, narrow, especially near the middle where the eyes appear approximated. Front black with purple reflections, dulled with thin gray pollen. Antennae black, the third joint small, about the length of first joint, broadly rounded at tip. Orbital cilia black, the lower cilia appearing brownish in certain lights.

Dorsum of thorax brown, dusted with yellowish pollen, a central vittum and the margin of scutellum appearing purple; scutellum with a single pair of marginal bristles; pleura dark blue-gray, densely grayish pollinose. Abdomen dark brown, somewhat flattened dorso-ventrally; hypopygium small, embedded.

Coxae concolorous with pleura, the tips of fore pair narrowly yellowish; fore and middle coxae with delicate brownish hairs on anterior surfaces, and several black bristles at tip. Fore femora blackened on basal two-thirds, the apical third brownish-yellow; middle femora dark yellow, infuscated on basal half of lower edge; posterior femora wholly yellow, bearing a single preapical bristle. All femora of plain structure. Tibiae dark yellow, fore and hind pairs of plain form; middle tibiae (fig. 6) gradually thickened toward the middle, this thickened portion ending in a short black wart-like protuberance on the outer-posterior surface, somewhat beyond the middle; the basal portion on inner edge bears a row of about eight short, blunt hairs. Tarsi wholly brownish; middle basitarsi somewhat curved, bearing a conspicuous black, spur-like projection at tip. Joints of fore tarsi as 11-3-2-2-3; of middle tarsi as 6-5-3-2-2; of hind tarsi as 5-6-4-3-3. Calypters and halteres brownish, the former with dark cilia.

Wings grayish hyaline, evenly tinged with brown; third and fourth veins appear parallel from slightly beyond the crossvein; the latter situated before the middle of wing, its length as compared with the last section of fifth vein as 3:8; anal angle evenly rounded, moderately prominent.

Described from a single male taken September 8, 1940, at Gardiner, Montana, by F. C. and V. H. Harmston. Type deposited in the U. S. National Museum.

This species is distinguished from others occurring in North America by its small size and the presence of a small, black wartlike projection on the outer-posterior surface of middle tibiae.

Peloropedes brevis (Van Duzee)

Kophosoma brevis Van Duzee, Trans. American Ent. Soc. 52: 45, 1926.

Campsicnemus crassitibia Van Duzee, Amer. Mus. Novit., no. 439: 1, 1930.

Curran (Amer. Mus. Novit., no. 682: 7, 1933) places crassitibia in the genus *Peloropedes*, stating that it did belong in *Camp*sicnemus, and that it is synonymous with K. brevis.

Dolichopus plumipes (Scopoli)

Musca plumipes Scopoli, Entom. Carneol., p. 334, 1763.

Dolichopus sequax Walker, List Dipt. Brit. Mus., 3: 666, 1849.

Campsicnemus sequax (Walker) Aldrich, Catalogue of North American Diptera. Smithsonian Misc. Coll. no. 1444: 291, 1905.

Dolichopus plumipes (Scopoli) Parent. Ann. Mag. Nat. Hist., Ser. 10, Vol. 13: 29, 1934.

Parent examined the type of *sequax* and considered it synonymous with *plumipes* Scopoli. This species has a wide distribution, having been collected by the writers in California, Colorado, Idaho, Oregon, Washington and Utah. They have also examined material from Alaska, various localities throughout Canada, Maine, Michigan, Minnesota, South Dakota, Wisconsin, Iowa, Illinois and Arkansas.

Campsicnemus curvispina Van Duzee

Campsicnemus calcaratus Van Duzee, Proc. U. S. Nat. Mus. 63: 3, 1923. *Campsicnemus curvispina* Van Duzee, Amer. Mus. Novit., no. 439: 2, 1930.

Because the name *calcaratus* was preoccupied by *C. calcaratus* Grimshaw, 1901, a species described from Hawaii, Van Duzee proposed the new name *curvispina* for his species.

Campsicnemus americanus Van Duzee. Described from Alaska. Specimens taken at Ottawa, Ontario, Canada, May 31, 1923, by Dr. C. H. Curran, and lent by Prof. E. H. Strickland, were examined by the writers.

C. claudicans Loew. This species was described from Alaskan material and since has been reported from Alaska by Van Duzee. Wheeler reports the species from Craig's Mountain, Idaho. The writers have examined specimens from Tacoma, Washington and Coeur d'Alene, Idaho (F. C. and V. H. Harmston).

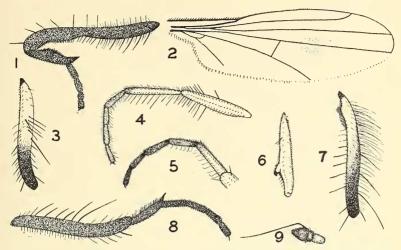
C. degener Wheeler. Wheeler described this species from material taken in California and Idaho. Van Duzee recorded it from Alaska. It evidently is a widely distributed species in western United States, having been taken by the writers at Boulder, Floy, Logan, Manila, Manti, Richfield, Scipio and Willard in Utah, from June to September; at Evanston, Wyoming in July; Gould, Colorado in August; Prescott, Arizona in April; Dixie, Oregon and Olympia, Washington in September.

C. hirtipes Loew. Described by Loew from material taken in Pennsylvania. Numerous specimens from Iowa and Illinois have been examined by the writers, taken by B. Berger in August and September.

C. nigripes V. D. This species has been taken by the writers in the following Utah localities: Logan, Moroni, Nephi, Price, Randolph, and Roosevelt, from May until September; at Prescott, Arizona in April; Muir Woods, California, in November; and Butte, Montana in September. It was originally described from California material.

C. philoctetes Wheeler. The type localities are South Dakota and Wyoming. Many specimens have been collected by the writers in the following localities: Logan, Randolph, Roosevelt, Trout Creek, and Washakie in Utah, from July until September; at Union and Pendleton, Oregon; Preston and Boise, Idaho; and Tacoma, Washington, in September.

Campsicnemus nigripes V. D., male, 1-2. C. utahensis n. sp., male, 3, 9. C. hirtipes Lw., male 4. C. degener Whlr., male, 5.



C. montanus n. sp., male, 6. C. arcuatus V. D., male, 7. C. melanus n. sp., male, 8.

C. thersites Wheeler. Described from Wyoming specimens. It has been collected by the writers at Garden City, Kingston, Logan, Mountain Home, Price and Randolph, in Utah, from July until September; at Bozeman, Montana, and Boise, Idaho, in September.

BIBLIOGRAPHY.

- Curran, C. H. Some North American Diptera. Amer. Mus. Nov. no. 682: 57, 1933.
- Loew, H. Monographs of Diptera of North America. 2: 193-195, 1864.
- Malloch, J. R. Notes on exotic Diptera. Stylops 1: 121–124, 1932.
- Parent, O. Etude sur les types de Dolichopodides exotiques de Francis Walker, Conservés au British Museum. Ann. and Mag. Nat. Hist., Ser. 10, 13: 298, 1934.
- Van Duzee, M. C. New North American species of Dolichopodidae. Ent. News, 38: 126–127, 1917.
- Van Duzee, M. C. New species of North American Dolichopodidae. Psyche. 30: 64–65, 1923.
- Van Duzee, M. C. Notes and descriptions of two-winged flies of the family Dolichopodidae, from Alaska. U. S. Nat. Mus. Proc. 63: 2-4, 1923.
- Wheeler, W. M. New species of Dolichopodidae from the United States. Calif. Acad. Sci. Proc., third series, 2: 58–62, 1899.